

REMARKS

Summary of the Amendment

Upon entry of the instant Amendment, claims 1, 11, 58 and 136 will have been amended. Accordingly, claims 1-8, 11-66, 69-112 and 115-145 will be pending with claims 6, 18, 19, 22, 23, 28-48, 51-54, 56, 57, 64, 77-96, 98-112, 115-135, 138 and 139 being withdrawn by the Examiner on the basis of a restriction requirement.

Summary of the Official Action

In the instant Office Action, the Examiner again neglected to acknowledge Applicant's claim to foreign priority by neglecting to indicate on the form PTOL-326 that the certified copies of the priority documents have been received. The Examiner also improperly indicated that claims 6, 18, 19, 22, 23, 28-48, 51-54, 56, 57, 64, 77-96, 98-104, 138 and 139 were withdrawn from examination. Additionally, the Examiner rejected claims 1-5, 7-10, 14, 15, 20, 24-27, 49, 50, 55, 58-63, 65-69, 70-76, 97, 136, 137 and 140-143 over the art of record. Finally, the Examiner indicated that claim 11 contains allowable subject matter and would be allowed if presented in independent form and that claims 12, 13, 16, 17 and 21 are allowed. By the present remarks, Applicant submits that the rejections have been overcome, and respectfully requests reconsideration of the outstanding Office Action and allowance of the present application.

Present Amendment is proper for entry

Applicant respectfully submits that the instant amendment is proper for entry after final rejection. Applicant notes that no question of new matter is presented nor are any new issues raised in entering the instant amendment of the claims and that no new search would be required. Moreover, Applicant submits that the instant amendment places the application in condition for allowance, or at least in better form for appeal. Accordingly, Applicant requests the Examiner to enter the instant amendment, consider the merits of the same, and indicate the allowability of the present application and each of the pending claims. Applicant notes, in particular, that claims 1, 58 and 136 have been amended to recite certain features which even more clearly distinguish over the applied documents and which were previously considered by the Examiner.

Status of the Certified Priority Document

The Examiner has neglected to acknowledge Applicant's claim to foreign priority on the form PTOL-326 by neglecting to indicate whether the required certified copies of the priority documents have been received.

Applicant filed the required certified copy of the priority document on April 15, 2004 and requests that the Examiner check box 12a1 on the form PTOL-326 in the next Official Action confirming receipt of the certified copy.

Accordingly, Applicant respectfully requests that the Examiner indicate such acknowledgment on form PTOL-326 in the next office action.

Restriction Requirement

Applicant acknowledges that the Examiner has again withdrawn claims 6, 18, 19, 22, 23, 28-48, 51-54, 56, 57, 64, 77-96, 98-104, 138 and 139 as not reading on the invention of Group I. Applicant notes, however, that the Examiner is not correct that claims 105-112 and 115-135 are not pending, and assumes that the Examiner intended to withdraw this claims as well.

Applicant again notes, in particular, that the restriction requirement dated February 12, 2006 did not set forth any species election requirement and the Examiner cannot properly withdraw any claims based thereon. The restriction requirement dated February 12, 2006 merely set forth a restriction requirement between Group I directed to claims 1-104 and 136-143, and Group II directed to claims 105-135.

Accordingly, the basis of election of species was entirely improper and should be withdrawn. Furthermore, Applicant submits that each of the new claims clearly reads on the elected invention of Group I.

Traversal of Rejections Under 35 U.S.C. § 103(a)

Over Mueller with Palm, Bauer and Schmidt

Applicant respectfully traverses the rejection of claims 1-5, 7, 8, 14, 15, 20, 24-27, 49, 50, 55, 58, 62, 63, 65, 66, 69, 97, 136, 137 and 140-145 under 35 U.S.C. § 103(a) as unpatentable over US Patent No. 6,173,925 to MUELLER et al. in view of US Patent No. 6,543,721 to PALM, US Patent No. 5,501,414 to BAUER, and US Patent No. 6,595,467 to

SCHMIDT.

The Examiner acknowledges that MUELLER lacks, among other things, the recited thickened region, using metal as the material for the panel and the stiffening element, and the recited two separate weld joints. However, the Examiner asserts that PALM and BAUER teaches to make the panel and stiffening element of metal and to use a weld joint and that SCHMIDT teaches the recited thickened region. The Examiner then concludes that it would have been obvious to one of ordinary skill in the art to combine the teachings of these documents. Applicant respectfully traverses this rejection.

Notwithstanding the Office Action assertions as to what these documents disclose or suggest, Applicant submits that no proper combination of these documents discloses or suggests: inter alia, a lightweight structural component comprising at least one *metal panel*, at least one *metal stiffening element*, the at least one metal stiffening element comprising two side pieces, and each **end surface** of the two side pieces being at least partially connected to the at least one metal panel in a material-locking manner, wherein *the two side pieces are connected to the at least one metal panel at two separate weld joint zones*, as recited in amended independent claim 1; inter alia, a lightweight structural component comprising at least one *metal panel* comprising at least one thickened region, at least one *metal stiffening element welded to the at least one panel*, the at least one metal stiffening element comprising a bar portion and two side pieces, and each **end surface** of the two side pieces being at least partially connected in a material-locking manner to the at least one thickened region *by two separate weld joint zones*, whereby the at least one metal

stiffening element is oriented in at least one of a lengthwise and a crosswise direction, as recited in amended independent claim 58; and inter alia, a lightweight structural component comprising a *metal panel* comprising at least one thickened region, at least one stiffening element coupled to a surface of the at least one thickened region, the at least one stiffening element being a *one-piece metal member* and comprising a head portion, a bar portion and two side pieces extending from the bar portion, the bar portion comprising a first thickness, each of the two side pieces comprising a second thickness, the first thickness being greater than the second thickness, and **end surfaces of the two side pieces being at least partially connected to the at least one thickened region by two separate weld joint zones** as recited in amended independent claim 136.

Applicant acknowledges that MUELLER teaches a stiffening element 20 having two side pieces which are fixed to a panel 30. However, MUELLER specifically discloses an adhesive attachment of side surfaces of the side pieces 27 and 27' to the skin 30 (see Fig. 1 and col. 3, lines 64-66). The end surfaces of side pieces 27 and 27' are, however, disclosed as being connected to the panel 30. Furthermore, MUELLER specifically states that the member 24 is fiber composite member (see col. 4, lines 14-15). The invention, in contrast, recites that the panel is at least one *metal panel* and that the stiffening element is at least one *metal stiffening element*. These features are simply not disclosed or suggested by MUELLER.

PALM does not cure the above-noted deficiencies of MUELLER. While it is apparent that PALM discloses a stiffening element 2 that is welded to a fuselage panel 1,

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the stiffening element 2 in PALM does not utilize two side pieces which are connected to the panel 1, and instead utilizes one area (defined by width "a") which is connected to the panel 1 by a weld joint. As such, PALM uses a single weld joint zone and not *two separate weld joint zones*.

BAUER does not cure the above-noted deficiencies of MUELLER and PALM. While it is apparent that BAUER discloses connecting stiffening elements 26 that is connected to a panel 24, the stiffening elements 26 BAUER do not utilize two side pieces which are connected to the panel 24, and instead utilizes a single bent area which is connected to the panel 24 by rivets (see col. 5, lines 11-15). As such, BAUER uses a single weld riveted zone and not *two separate weld joint zones*.

SCHMIDT does not cure the above-noted deficiencies of MUELLER, PALM and BAUER. While it is apparent that SCHMIDT discloses a stiffening element 2 that is welded to a fuselage panel 1, the stiffening element 2 in SCHMIDT also does not utilize two side pieces which are connected to the panel 1, and instead utilizes one main web, e.g., 3A, which is connected to the panel 1 by a weld joint, e.g., 4A. As such, SCHMIDT uses a single weld joint zone and not *two separate weld joint zones*.

Thus, Applicant submits that the above-noted documents fail to disclose or suggest the features recited in at least independent claims 1, 58 and 136. Because no proper combination of the above-noted documents discloses or suggests at least the above-noted features of the instant invention, Applicant submits that no proper combination of MUELLER, PALM, BAUER and SCHMIDT can render unpatentable the combination of

features recited in at least independent claims 1, 58 and 136.

Furthermore, Applicant submits that there is no motivation or rationale disclosed or suggested in the art to modify any of the applied documents in the manner asserted by the Examiner. Nor does the Examiner's opinion provide a proper basis for these features or for the motivation to modify these documents, in the manner suggested by the Examiner. Therefore, Applicant submits that the invention as recited in at least independent claims 1, 58 and 136 is not rendered obvious by any reasonable inspection of this disclosure.

Applicant directs the Examiner's attention to the guidelines identified in M.P.E.P section 2141 which state that "[i]n determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

As this section clearly indicates, "[o]bviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)."

Moreover, it has been legally established that "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior

art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) Although a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.' 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references)."

Additionally, it has been held that a statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

Furthermore, Applicant submits that dependent claims 2-5, 7, 8, 14, 15, 20, 24-27, 49, 50, 55, 58, 62, 63, 65, 66, 69, 97, 137 and 140-145 are allowable at least for the reason that these claims depend from an allowable base claim and because these claims recite additional features that further define the present invention. In particular, Applicant submits that no proper combination of MUELLER, PALM, BAUER and SCHMIDT discloses or suggests; that the component is utilized in an aircraft and the at least one stiffening element is oriented at least one of a lengthwise and a crosswise direction relative to the at

least one panel as recited in claim 2; that the at least one panel comprises a skin sheet as recited in claim 3; that the at least one panel comprises a thickened region in an area of the two separate weld joint zones as recited in claim 4; that the at least one stiffening element comprises a stringer which is oriented in a lengthwise manner as recited in claim 5; that the two separate weld joint zones comprise laser beam weld zones as recited in claim 7; that the two separate weld joint zones comprise friction stir weld zones as recited in claim 8; that the two side pieces are bent or oriented away from each other by a total angle α , whereby inner surfaces of the two side pieces and a surface of the at least one panel form a generally isosceles triangle as recited in claim 14; that the angle α lies in a range of between approximately 7° and approximately 50° as recited in claim 15; that the two side pieces are integrally formed with the at least one stiffening element, whereby the at least one stiffening element and the two side pieces comprise a one-piece member as recited in claim 20; that the at least one stiffening element comprises an edge area which is oriented in a generally parallel manner relative to the at least one panel as recited in claim 24; that the at least one panel comprises a panel reinforcing base portion which comprises a first base portion and a second base portion separated from the first base portion, wherein lateral outer surfaces of the first and second base portions rest against or adjacent to inner surfaces of the two side pieces as recited in claim 25; that an area of the at least one panel comprising the two weld joint zones comprises a surface formed by metal cutting as recited in claim 26; that an area of the at least one panel comprising the two weld joint zones comprises a surface formed by metal removal as recited in claim 27;

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that the at least one panel comprises a panel stiffening base made of material that is deformed during a rolling-in of a stress relief element into the at least one panel as recited in claim 49; that the at least one panel comprises a panel stiffening base made of material that is deformed during a rolling of the at least one panel as recited in claim 50; that the at least one stiffening element comprises a head portion that is coupled to a bar portion as recited in claim 55; that the component is arranged on an aircraft as recited in claim 62; that the at least one stiffening element comprises a stringer oriented in a lengthwise direction as recited in claim 63; that the two separate weld joint zones comprise laser beam weld zones as recited in claim 65; that the two separate weld joint zones comprise friction stir weld zones as recited in claim 66; that the two weld joint zones comprise panel surfaces and surfaces of the two side pieces, and wherein each of the panel and two side piece surfaces comprises a machined surface as recited in claim 69; that the at least one panel comprises a sheet skin for one of an aircraft, a boat and a ship as recited in claim 97; that the bar portion and two side pieces of the at least one stiffening element form a generally Y-shaped cross-section as recited in claim 137; that a distance between the two separate weld joint zones is greater than the first thickness as recited in claim 140; that a distance between the two separate weld joint zones is greater than the second thickness as recited in claim 141; that a distance between inner edges of the two separate weld joint zones is greater than the first thickness as recited in claim 142; that a distance between inner edges of the two separate weld joint zones is greater than the second thickness as recited in claim 143; that the two separate weld joint zones are arranged between a

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thickened region of the panel and the two side pieces as recited in claim 144; and that the at least one metal stiffening element comprises a one-piece metal member as recited in claim 145.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the above-noted rejection under 35 U.S.C. § 103(a) and indicate that these claims are allowable over the applied art of record.

Over Mueller and Schmidt with Lackman

Applicant respectfully traverses the rejection of claims 59-61 and 70-76 under 35 U.S.C. § 103(a) as unpatentable over MUELLER in view of SCHMIDT and further in view of US Patent No. 4,256,790 to LACKMAN et al.

The Examiner acknowledges that MUELLER and SCHMIDT lack, among other things, the recited reinforcing element. However, the Examiner asserts that this feature is taught by LACKMAN and that it would have been obvious to one of ordinary skill in the art to combine the teachings of these documents. Applicant respectfully traverses this rejection.

Notwithstanding the Office Action assertions as to what these documents disclose or suggest, Applicant submits that no proper combination of these documents discloses or suggests: inter alia, a lightweight structural component comprising at least one *metal panel* comprising at least one thickened region, at least one *metal stiffening element welded to the at least one metal panel*, the at least one metal stiffening element comprising a bar

portion and two side pieces, and each of the two side pieces being at least partially connected in a material-locking manner to the at least one thickened region *by two separate weld joint zones*, whereby the at least one metal stiffening element is oriented in at least one of a lengthwise and a crosswise direction, as recited in amended independent claim 58.

As explained above, MUELLER specifically discloses an adhesive attachment of the side surfaces of the side pieces 27 and 27' to the skin 30 (see Fig. 1 and col. 3, lines 64-66). Furthermore, MUELLER specifically states that the member 24 is fiber composite member (see col. 4, lines 14-15). The invention, in contrast, recites that the panel is at least one *metal panel* and that the stiffening element is at least one *metal stiffening element*. These features are simply not disclosed or suggested by MUELLER. Additionally, the invention provides that *the end surfaces of the two side pieces are connected to the at least one metal panel at two separate weld joint zones*. As MUELLER discloses an adhesive connection between side surfaces of the side pieces 27 and 27' and the rib 30, MUELLER cannot be said to disclose the recited weld joints between these members.

SCHMIDT does not cure the above-noted deficiencies of MUELLER. As noted above, while it is apparent that SCHMIDT discloses a stiffening element 2 that is welded to a fuselage panel 1, the stiffening element 2 in SCHMIDT does not utilize two side pieces which are connected to the panel 1, and instead utilizes one main web, e.g., 3A, which is

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connected to the panel 1 by a weld joint, e.g., 4A. As such, SCHMIDT uses a single weld joint zone and not *two separate weld joint zones*.

LACKMAN does not cure the above-noted deficiencies of any proper combination of MUELLER and SCHMIDT. While it is apparent that LACKMAN discloses a stiffening element 22/23 that is connected to a panel 20 by bonding, and that utilizes a filler 30, the stiffening element 22/23 and panel 30 in LACKMAN are composite material structures and not metal members. Furthermore, the side surfaces (not the end surfaces) of the two side pieces of the stiffening element 22/23 are connected to the panel 20 by bonding, and are not connected to the panel 20 by *two separate weld joint zones*.

Thus, Applicant submits that the above-noted documents fail to disclose or suggest the features recited in at least independent claim 58. Because no proper combination of the above-noted documents discloses or suggests at least the above-noted features of the instant invention, Applicant submits that no proper combination of MUELLER, SCHMIDT and LACKMAN can render unpatentable the combination of features recited in at least independent claim 58.

Furthermore, Applicant submits that there is no motivation or rationale disclosed or suggested in the art to modify any of the applied documents in the manner asserted by the Examiner. Nor does the Examiner's opinion provide a proper basis for these features or for the motivation to modify these documents, in the manner suggested by the Examiner. Therefore, Applicant submits that the invention as recited in at least independent claim 58 is not rendered obvious by any reasonable inspection of this disclosure.

Furthermore, Applicant submits that dependent claims 59-61 and 70-76 are allowable at least for the reason that these claims depend from an allowable base claim and because these claims recite additional features that further define the present invention. In particular, Applicant submits that no proper combination of MUELLER, SCHMIDT and LACKMAN discloses or suggests; that the component further comprises a reinforcing element located in a cavity formed by the two side pieces and a surface of the at least one thickened region as recited in claim 59; that the at least one thickened region comprises a panel stiffening base and wherein the reinforcing element comprises a high-strength material having a modulus of elasticity that is generally greater than a modulus of elasticity of a material of at least one of the at least one panel and the at least one stiffening element as recited in claim 60; that the reinforcing element is connected to at least one of the two side pieces and to the at least one panel stiffening base in one of a force-locking manner and a form-locking manner as recited in claim 61; that the component further comprises a reinforcing element having surfaces which are both force-locked and form-locked to at least one of inner surfaces of the two side pieces and a surface of the thickened region as recited in claim 70; that the surfaces comprise at least one of a rough profile and surface profiling as recited in claim 71; that the component further comprises a reinforcing element which comprises surfaces which are fixed to at least one of inner surfaces of the two side pieces and a surface of the thickened region as recited in claim 72; that the component further comprises a cavity formed by the two side pieces and the at least one thickened region and a reinforcing element arranged within the cavity as recited

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in claim 73; that a cross-sectional shape of the cavity generally corresponds to a cross-sectional shaped of the reinforcing element as recited in claim 74; that the cavity comprises a cross-sectional shape having a form of a generally equal isosceles triangle with a rounded-off apex as recited in claim 75; and that the reinforcing element comprises a cross-sectional shape having a form of a generally equal isosceles triangle with a rounded-off apex as recited in claim 76.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the above-noted rejection under 35 U.S.C. § 103(a) and indicate that these claims are allowable over the applied art of record.

Allowable Subject matter

Applicant appreciates the Examiner's indicating that claim 11 contains allowable subject matter and that claims 12, 13, 16, 17 and 21 are allowed. Accordingly, as claim 11 has been presented in independent form, Applicant submits that claim 11 should also be indicated as being allowed. Additionally, Applicant submits that all pending claims should be indicated as being allowed.

Request for Rejoinder of Non-Elected Claims

Applicant submits that rejoinder of withdrawn claims 6, 18, 19, 22, 23, 28-48, 51-54, 56, 57, 64, 77-96, 98-112, 115-135, 138 and 139 is now proper. These claims should be rejoined because these claims depend from claims 1, 58 and 136 which are believed to be

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allowable. Applicant refers the Examiner to MPEP 821.04 which indicates that withdrawn claims which depend from or otherwise include all the limitations of the allowable claims will be rejoined if presented prior to allowance and issuance of a final rejection. Accordingly, Applicant requests that the Examiner rejoin all the withdrawn claims directed to the non-elected invention and consider the merits of the same.

CONCLUSION

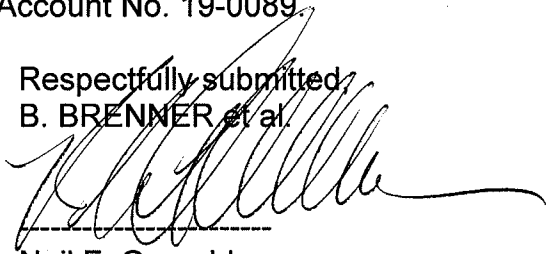
In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicant's invention, as recited in each of the pending claims. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Authorization is hereby given to refund excess payments and charge any additional fee necessary to have this paper entered to Deposit Account No. 19-0089.

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